



INTERNATIONAL SPACE STATION

EXPEDITION 69



Soyuz

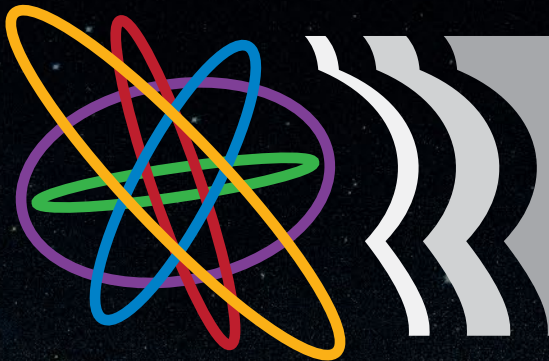
Launch: September, 2022
Landing: September, 2023**SERGEY PROKOPYEV (Roscosmos)**
Commander**Born:** Sverdlovsk, Russia
Spaceflights: Exp 56/57, Exp 68
Bio: <https://go.nasa.gov/3wJzMrV>**DMITRI PETELIN (Roscosmos)**
Flight Engineer**Born:** Kustanai, Kazakh SSR
Spaceflights: Exp 68
Bio: <https://go.nasa.gov/3Q5wflp>**FRANK RUBIO (NASA)**
Flight Engineer**Born:** Los Angeles, California
Spaceflights: Exp 68
Bio: <https://go.nasa.gov/3TyAhyw>
Twitter: @NASA_Astronauts
Instagram: @astro_frankrubio

Crew-6

Launch: March, 2023
Landing: September, 2023**STEPHEN BOWEN (NASA)**
Flight Engineer**Born:** Cohasset, Massachusetts
Spaceflights: STS-126, STS-132,
STS-133, Exp 68
Twitter: @NASA_Astronauts
Bio: <https://go.nasa.gov/3RjzCKp>**WOODY HOBURG (NASA)**
Flight Engineer**Born:** Pittsburgh, Pennsylvania
Spaceflights: Exp 68
Bio: <https://go.nasa.gov/3YkF8FK>
Twitter: @Astro_Woody
Instagram: @astro.woody**SULTAN ALNEYADI (MBRSC)**
Flight Engineer**Born:** Umm Ghafa, Abu Dhabi
Spaceflights: Exp 68
Bio: <https://go.nasa.gov/3lbZXgJ>
Twitter: @Astro_Alneyadi
Instagram: @astro_alneyadi**ANDREY FEDYAEV (Roscosmos)**
Flight Engineer**Born:** Sverdlovsk Oblast, Russia
Spaceflights: Exp 68
Bio: <https://go.nasa.gov/3xhgCJv>

EXPEDITION 69

Expedition 69 began in March 2023 and ends in September 2023. This expedition will include research investigations focused on biology, Earth science, human research, physical sciences and technology development, providing the foundation for continuing human spaceflight beyond low-Earth orbit to the Moon and Mars.



SCIENCE ON THE

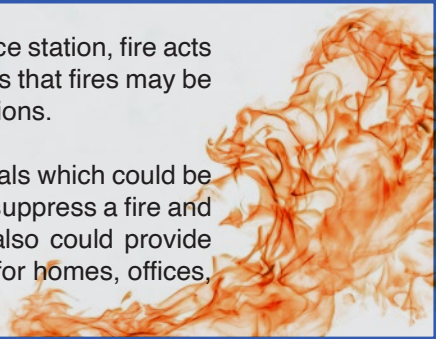


During Expedition 69, crew members will conduct experiments studying how particular materials burn in microgravity to keep spacecraft safe, test a new tool for deep-space immune monitoring in orbit, continue work with 3D-cultured cardiac muscle tissue to assess human cardiac function in microgravity, and test samples for microorganisms from outside of the space station. Follow the latest ISS Research and Technology news at: www.nasa.gov/stationresearchnews

SoFIE - MIST (Material Ignition and Suppression Test)

Gravity influences flames on Earth, but in microgravity aboard the space station, fire acts differently and can behave in unexpected ways. Some evidence suggests that fires may be more hazardous in reduced gravity, a safety concern for future space missions.

The SoFIE – MIST study focuses on understanding the flammability of materials which could be used in future space missions. The equipment and procedures to detect and suppress a fire and to clean up afterwards are also essential for crew safety. What we learn also could provide better understanding of fire safety and improve methods for testing material for homes, offices, aircraft, and other uses on Earth.



HUNCH Ball Clamp Monopod

Manufactured by students, the HUNCH Ball Clamp Monopod is attempting to address astronaut comments on the difficulty of positioning video or still cameras in the middle of a module. NASA's HUNCH program enables students to fabricate real-world products for NASA as they apply their science, technology, engineering, and mathematics skills.

The project is composed of an aluminum monopod fitted with a camera shoe and ball clamp so it can be attached to a standard space station handrail. This serves as a pivoting platform for photography and video. Students from Dade Middle School, Cy-Woods High School, and Conroe High School that worked to manufacture and produce the hardware will be given pictures and videos of the hardware evaluation.



Immunity Assay

Studies have shown that microgravity weakens the immune system. Monitoring and maintaining human health are vital prerequisites for accomplishing mission success. Immunity Assay aims to develop a new research tool to study the impact of spaceflight stressors, like microgravity and radiation, on cellular immune functions. Researchers are doing this by developing a new way to monitor health and immune functions in a blood sample, with the help of a functional immune test. The outcome of this investigation could provide a handy tool for direct immune monitoring on the space station, as well as on Earth.

Engineered Heart Tissues - 2



This ISS National Lab-sponsored study continues work with 3D-cultured cardiac muscle tissue to assess human cardiac function in microgravity. Previous work with 3D cultures in space detected changes at the cellular and tissue level that could provide early indication of the development of cardiac disease. Engineered Heart Tissues-2 tests whether new therapies prevent these negative effects from occurring. A small magnet embedded into a flexible post is attached to each cardiac tissue. The contractile motion of the tissues moves the magnet. A sensor records real-time contractile function of the tissues by tracking the magnet's movement.



The Expedition 69 patch reflects the mission of the International Space Station to enable long-term exploration of space, for the benefit of Earth. The unique mosaic design is inspired by the vintage, Art Deco stained glass window in Star City, Russia that provides a stylistic portrayal of the beauty of space exploration. The number "69" forms a circle to symbolize the international partnerships and collaboration that make the space station program possible. The Earth is the central element inside the "6," as our home planet and the primary beneficiary of research aboard space station. The star shining from Earth, spanning multiple continents, represents the ground teams around the world who support every aspect of this expedition and ensure our safe return home. The space station itself signifies the contributions of thousands of people over the past several decades, whose vision and sustained efforts have made this miracle of a laboratory an unparalleled success. Looking towards the

future, the next big steps in human space exploration are reflected in the Moon and Mars. The sun around Mars is symbolic of the human imagination, curiosity, and ingenuity that draws us to explore. The two white stars in the sky are taken directly from the Star City mural. The larger star represents the family and friends whose love and support makes this endeavor possible. The smaller star represents the explorers who came before us and helped pave the way to the stars.

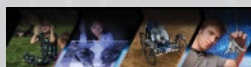


Space Station Research Explorer At any given time aboard the space station, a large array of different experiments are underway within a wide range of disciplines. Here, you can search the database of experiments to learn more about each experiment's objectives, descriptions, results, and imagery, as well as find links to additional information beyond this database.

<https://go.nasa.gov/researchexplorer>

STEMonstrations STEMonstrations fit the need for students and educators to have high quality, informative videos that cover the wide range of topics outlined in the Next Generation Science Standards (NGSS). Astronauts film videos instructing students in biology, chemistry, physics, Earth science, and space science. The videos align to a "Try This" one- to two-page lesson plan where students and educators can make connections to topics they are working on in the classroom.

www.nasa.gov/stemonstrations



NASA CONNECTS Connecting Our NASA Network of Educators for Collaborating Together in STEM. You can join as a formal (classroom) educator or as a professional in the informal education (out-of-school time) field. Users can be Museum & Informal Education (MIE) Alliance members and/or serve as K-12 or higher education educators. These members will discover resources that enable further STEM learning in their respective areas.

<https://stemgateway.nasa.gov/connects/s/>

Sally Ride EarthKAM Sally Ride EarthKAM (Earth Knowledge Acquired by Middle school students) is a NASA educational outreach program that enables students, teachers, and the public to learn about Earth from the unique perspective of space. Students can "program" the camera to take pictures of the Earth from space and study the images they receive.

www.earthkam.org/



Spot the Station Watch the International Space Station pass overhead from several thousand worldwide locations. It is the third brightest object in the sky and easy to spot if you know when to look up. Visible to the naked eye, it looks like a fast-moving plane only much higher and traveling thousands of miles an hour faster!

spotthestation.nasa.gov/

Story Time from Space While in space, astronauts videotape themselves reading books to children on Earth. In addition, cross-content curriculum is designed to support the Next Generation Science Standards and Common Core.

storytimefromspace.com/



Amateur Radio on the ISS ARISS lets students worldwide experience the excitement of talking directly with crew members of the International Space Station, inspiring them to pursue interests in careers in science, technology, engineering, and math, and engaging them with radio science technology through amateur radio.

www.ariss.org/

In-flight Education Downlinks Wouldn't it be great if students could talk with an astronaut aboard the International Space Station about what it is like to live and work in space? Well, they can! Educational organizations located in the United States can host an in-flight education downlink with space station crew members. Students pose questions and watch as astronauts answer the questions and demonstrate science, technology, engineering, and mathematics concepts in ways that are impossible on Earth.

www.nasa.gov/audience/foreducators/stem-on-station/downlinks.html



www.nasa.gov/stemonstation



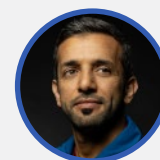
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